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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/735,166	12/12/2000	David A. Mantell	XXT-056	5417

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LAHIVE & COCKFIELD
28 STATE STREET
BOSTON, MA 02109

EXAMINER

MOUTTET, BLAISE L

ART UNIT	PAPER NUMBER
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2853

DATE MAILED: 02/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/735,166

Applicant(s)

MANTELL, DAVID A.

Examiner

Blaise L Mouttet

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 4, 6, 7, 10, 12-14, 16, 17, 19, 22 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Weber et al. US 4,328,504.

Weber et al. discloses, regarding claim 1, an image forming system with an image forming method comprising:

discharging droplets from a printhead 20 onto an imaging medium 10 to create an image (figure 3, figure 8); and

measuring the difference between a position of the first ink droplet and the position of the second ink droplet following the creation of the image (figure 8, column 6, lines 26-58).

Regarding claim 4, 7, 13 and 19, the dot deviation 'd' between adjacent ink dots (figure 8) is stored and is compensated for by adjusting drive timing (column 6, lines 26-58).

Regarding claim 6, see column 5, line 61 - column 6, line 10.

Regarding claim 10, the velocity of ink drops are controlled to correct drop positioning (column 5, line 61 - column 6, line 10).

Regarding claim 12, time of ejection is adjusted to compensate for drop offset (column 6, lines 11-25).

Regarding claim 14, several sets of ink drops are ejected onto the print medium to form an image (figure 8).

Regarding claim 16, see column 5, line 61 - column 6, line 10.

Regarding claim 17, see figure 7 with printhead 20, processor 42 and the printhead facility being comprised of the peripheral circuitry shown in figure 7.

Regarding claims 22 and 23, see column 6, lines 11-48.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2, 3, 5, 8, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weber et al. US 4,328,504 in view of Stanley et al. US 5,212,497.

Weber et al. fails to disclose measuring the velocities of the ink droplets discharged relative to one another and generating an ink droplet velocity profile from the measured differences.

Stanley et al. discloses measuring ink droplet velocities of arrays of drop ejectors utilizing a camera 102 and compensating for deviation of drops in the array (see abstract).

It would have been obvious for a person of ordinary skill in the art to measure the velocities of the ink droplets discharged relative to one another and generating an ink droplet velocity profile from the measured differences in the method and system of Weber et al. as taught by Stanley et al.

The motivation for doing so would have been to provide a method and system that tunes a print head so that all of the orifices eject ink droplets at velocities within an acceptable range as taught by column 2, lines 8-11 of Stanley et al.

3. Claims 9, 15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weber et al. US 4,328,504 in view of Niikura et al. US 5,576,744.

Weber et al. fails to disclose determining an air gap distance between the imaging medium and the printhead and controlling the discharge of ink based on the air gap distance.

Niikura et al. teaches acquiring distance information between a plurality of recording elements and a print medium using this information to adjust printing timing (column 6, lines 30-42).

It would have been obvious to a person of ordinary skill in the art to determine an air gap distance between the imaging medium and the array of ejectors disclosed by Weber et al. and use this information to control ink discharge as taught by Niikura et al.

The motivation for doing so would have been to prevent the formation of a slanted image due to a variable air gap (such as when printing on a curved drum) as taught by column 14, line 66-column 15, line 8 of Niikura et al.

4. Claims 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weber et al. US 4,328,504 in view of Stanley et al. US 5,212,497, as applied to claim 8, and further in view of Moriyama US 4,847,638.

Weber et al. in view of Stanley et al. fails to disclose a step of determining a variation between the first and second droplets to compensate for image medium thickness.

Moriyama teaches determining a variation in the timing between ink discharges in an ink jet printer on the basis of the detection of paper thickness (see abstract).

It would have been obvious for a person of ordinary skill in the art to determine a variation in the timing between ink discharges in the method of Weber et al. in view of Stanley et al. on the basis of paper thickness as taught by Moriyama.

The motivation for doing so would have been in order to minimize ink drop placement deviation as taught by column 2, lines 48-53 of Moriyama et al.

Response to Arguments

5. Applicant's arguments filed January 16, 2002 have been fully considered but they are not persuasive. Applicant's arguments are drawn to newly claimed features not present in the original presentation that have necessitated new grounds of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Blaise Mouttet whose telephone number is (703) 305-3007. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow, Jr. Art Unit 2853, can be reached on (703) 308-3126. The

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fax phone number for the organization where this application or proceeding is assigned is (703) 305-3432.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Blaise Mouttet February 4, 2002

Bm 2/4/2002


John Barlow
Supervisory Patent Examiner
Technology Center 2800